

165012

Friday, August 11, 2017 11:16:24 AM

Item ID:	D3499-5	Accept	*N900040100*	Setup	Start	*NS1*
Revision ID:						
Item Name:	Placard				Stop	*NS2*
Start Date:	8/14/2017	Start Qty: 6.00	*6*	Cust Item ID:		
Required Date:	8/21/2017	Req'd Qty: 6.00	*6*	Customer:		
Reference:						

Approvals: Process Plan: <u>10.0B</u> Date: <u>2017/08/11</u> Tooling: _____ Date: _____		Run Start *NR1* Stop *NR2*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____		

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER :			

Work Order ID 165012***165012***

Page 2

Friday, August 11, 2017 11:16:24 AM

Item ID: D3499-5 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Placard
Start Date: 8/14/2017 Start Qty: 6.00 ***6*** Cust Item ID:
Required Date: 8/21/2017 Req'd Qty: 6.00 ***6*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>51037</u>	0.00							
130						<u>6</u>	<u>SEP 14 2017</u>	<u>DAS</u>	
Packaging	Memo	0.06						<u>6</u>	
Packaging	***ONE YEAR EXPIRED DATE FROM RECEIVING: <u>SEP 13 2018</u> ***							<u>9-89</u>	
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.60							
Quality Control									

17/9/18 *[Signature]*

DAS
21
9-89

SEP 14 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

Picklist Print

Friday, August 11, 2017 11:16:22 AM

Page 1

Work Order ID: 165012

165012

Parent Item: D3499-5

D3499-5

Parent Item Name: Placard

Start Date: 8/14/2017

Required Date: 8/21/2017

Start Qty: 6.00

Required Qty: 6.00

Comments:

IPP Rev:A New Issue 06-05-05 JLM

IPP Rev:B As per Rev B 06-08-31 JLM

IPP Rev:C as per dwg

revC DD 10.02.23 verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3499-5P		Purchased	No			110	Each	0.0000	1	6			
D3499-5P									**				
Placard													

6x Sp 17-9-13

DQA: _____ Date: _____

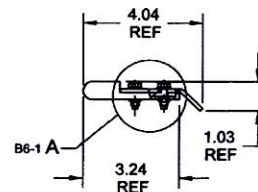
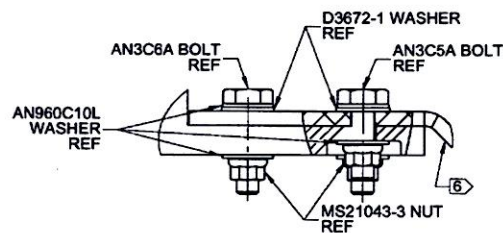
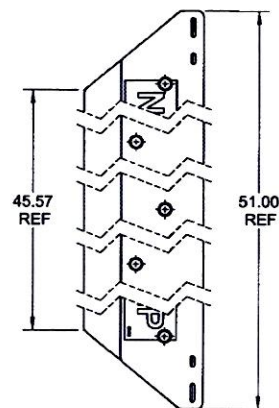


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER :			



DETAIL A B4-1
SCALE 4X

D3499-042 CABLE GUARD ASSEMBLY

ITEM	QTY	P/N	DESCRIPTION
1	X	D3499-042	CABLE GUARD ASSEMBLY
2	1	D3499-2	MOUNTING PLATE
3	1	D3499-3	PLASTIC GUARD
4	2	D3499-5	PLACARD
5	2	AN3C5A	BOLT
6	3	AN3C6A	BOLT
7	10	AN960C10L	WASHER
8	5	MS21043-3	NUT
9	5	D3672-1	WASHER

RELEASE
2010-02-02
MD

C	DRAWING UPDATED TO CURRENT STANDARDS. 3.245 WAS 3.235 (ZN DB-3); 3.24 WAS 3.25 (ZN D3-3); REVISE TOLERANCE & 2.01 WAS 2.00 (ZN D3-3); D3672-1 WAS NAS1515H-3L (ZN D3-1, D5-1, D7-1); ADD IDENTIFY NOTE (ZN A8-1); REF NCR-09-045	RF	09.06.19
B	RE-DESIGN D3499-2F7-3	MB	06.08.15
A	NEW ISSUE	MB	06.04.11
REV.	DESCRIPTION	BY	DATE
DESIGN	 DART AEROSPACE USA, INC. PORT HADLOCK, WA DRAWING NO. D3499 TITLE CABLE GUARD	REV. 0	
DRAWN		SHEET 1 OF 1	
CHECKED		SCALE	
MFG. APPR.		NTS	
APPROVED			
DE APPR.	COPYRIGHT © 2008 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. THIS IS SUPPLIED UNDER THE EXHIBIT AGREEMENT THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT		
DATE	09.06.19		

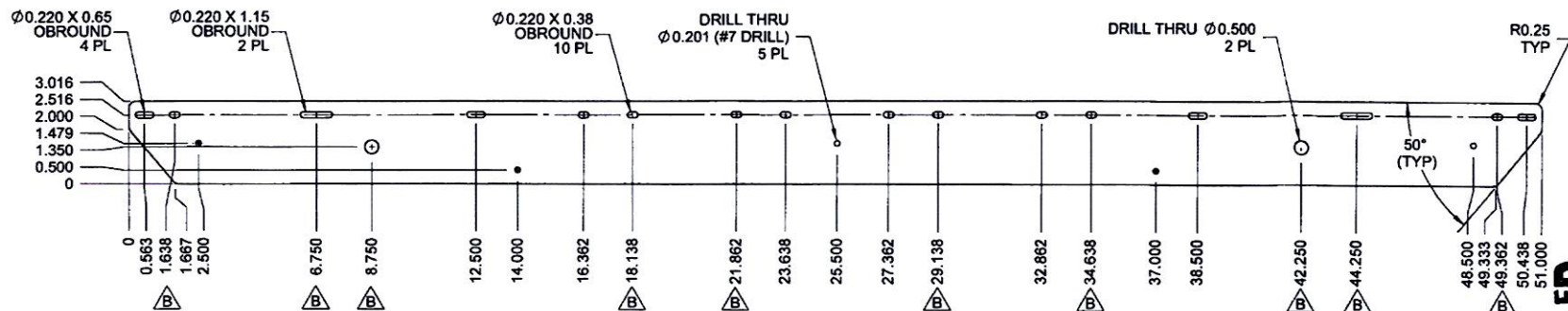
NOTES:

- 1) MATERIAL: N/A
2) FINISH: N/A
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3499-041/-042" USING FINE POINT PERMANENT INK MARKER
7) WEIGHT: 3.90 lbs

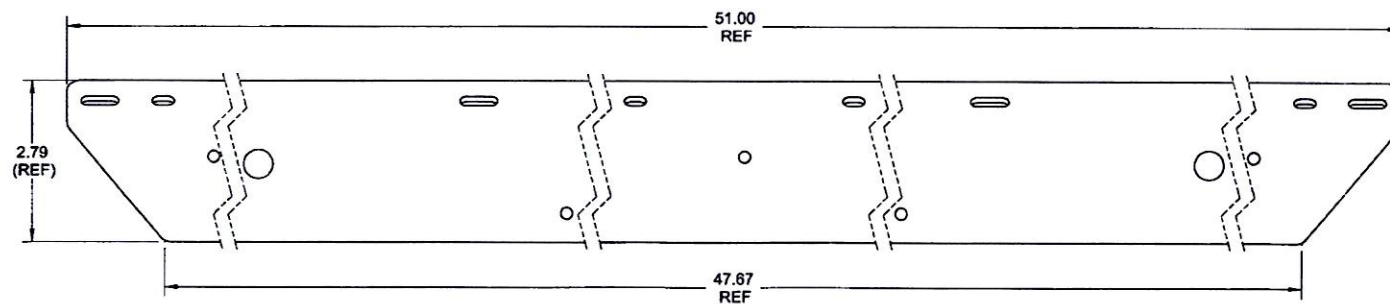
W/O 165012. OJB 207/08/11

DAS
13
9-89

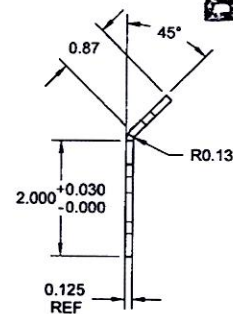
8 7 6 5 4 3 2 1



D3499-2F MOUNTING PLATE FLAT PATTERN
SCALE 0.5X



D3499-2 MOUNTING PLATE



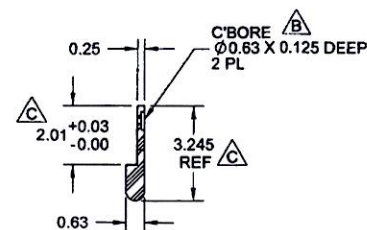
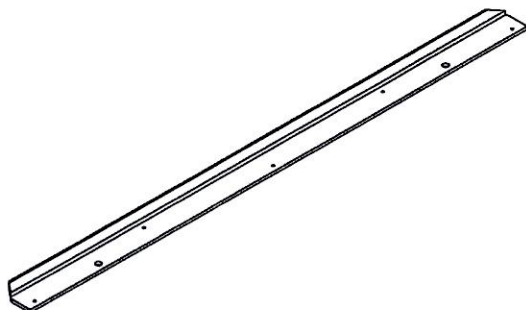
D3499-2 BENDING DETAIL

NOTES:

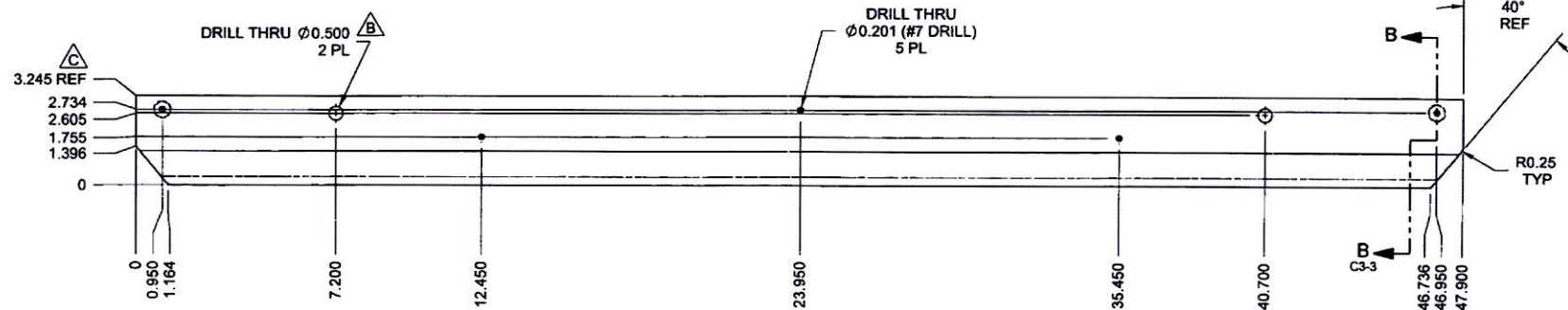
- 1) MATERIAL: 6061-T6 ALUMINUM SHEET 0.125 THICK
PER AMS-QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209
REF. DART SPEC. M6061T6S.125
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "WHITE" (4.3.5.2) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 1.81 lbs

DESIGN	B	DART AEROSPACE USA, INC.	
DRAWN	RF	PORT HADLOCK, WA	
CHECKED	Y	DRAWING NO.	REV. C
MFG. APPR.		D3499	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CABLE GUARD	NTS
DATE	09.06.19	COPYRIGHT © 2006 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS HEREBY AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR TRANSMITTED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2010-02-02



SECTION B-B B2-3



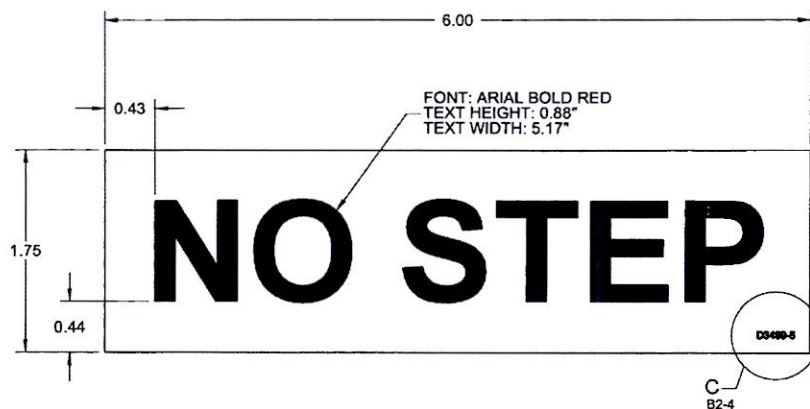
D3499-3 CABLE GUARD

NOTES:

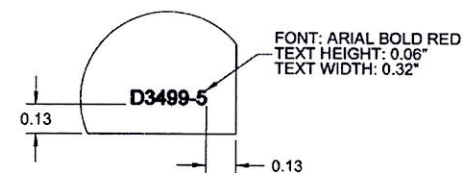
- 1) MATERIAL: UHMW BLACK TIVAR 1000 VIRGIN MATERIAL
REF. MUHMWB
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 2.52 lbs

RELEASED
2010-02-02

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	RF	PORT HADLOCK, WA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D3499	SHEET 3 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CABLE GUARD	NTS
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D3499-5 PLACARD



DETAIL C B5-4
SCALE 2X

RELEASED
2010-02-03
mp

NOTES:

- 1) MATERIAL: RED LETTERS ON WHITE ADHESIVE BACK VINYL
MANUFACTURED FROM 3M 7 MIL MASKING FILM #8522CP OR
AVERY IPM #2031. SIZE IS 6.00" LONG" x 1.75" WIDE
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A

DESIGN	B	DART AEROSPACE USA, INC.	
DRAWN	RF	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. C
MFG. APPR.		D3499	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CABLE GUARD	NTS
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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO37401**

Purchase Order Date 8/14/2017

PO Print Date 8/15/2017

Page Number 1 of 3

Order From :

VC-STU001

Ship To : DART AEROSPACE LTD

STUDIO DE LETTRAGE 2001
210 MAIN WEST
HAWKESBURY, ON K6A 2H6
CA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED
2017/08/15

Contact Name

Vendor Phone 613 632 5449

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	D2258-200P As per Dwg D2258 Rev. F B165008	Weight Placard 200lb	8/22/2017 Yes 8/22/2017		6.00 Each	\$13.33	\$80.00
Line Total:							\$80.00
2	D3499-5P As Per Dwg 3499 Rev. C B165012 17.09.14	Placard	8/22/2017 Yes 8/22/2017		6.00 Each	\$13.33	\$80.00
Line Total:							\$80.00
3	D3944-1P As Per Dwg 3944 Rev A B165013	Placard	8/22/2017 Yes 8/22/2017		6.00 Each	\$13.33	\$80.00

Note:

8/15/2017

studio sl2

210 Main West
Hawkesbury, Ontario K6A 2H6
Canada

INVOICE

Invoice No.: 44855
Date: 09/13/2017
Ship Date:
Page: 1
Re: Order No.

Sold to:

Dart Aerospace Ltd

1270 Aberdeen
Hawkesbury, Ontario
K6A 1K7

Ship to:

Dart Aerospace Ltd

1270 Aberdeen
Hawkesbury, Ontario
K6A 1K7

Quantity	Description	Base Price	Disc. %	Unit Price	Amount
6	D2258-200P.	13.33		13.33	79.98
6	D3499-5P.	13.33		13.33	79.98
6	D3944-1P.	13.33		13.33	79.98
6	D4085-3P.	13.33		13.33	79.98
12	D5418-1P.	6.67		6.67	80.04
6	D5120-1P.	13.33		13.33	79.98
6	D5119-1P.	13.33		13.33	79.98
	PO 37401				
	Attn: Diane Baker				
	Subtotal:				559.92
	H - HST				
	HST				72.81
Thank you for your business / Merci de faire affaire avec nous					
Shipped By:				Total Amount	632.73
Comment: WO20888				Amount Paid	0.00
Sold By:				Amount Owing	632.73

HST #: 825007651RT0001

Sp 17-9-13

******CERTIFICATE of CONFORMITY******

Customer:

Studio SL2

Purchase Order N°:

37401

Packing Slip N°:

W0 20888

Part N°:

Serial N°:

Description: D8258-200P, D3499-5P, D3444-1P, D4085-3P, D5418-1P, D5120-1P, D5119-1P

Quantity:

6, 6, 6, 12, 6, 6.

Certification:

We hereby certify that:

1. The above listed items were manufactured, repaired and/or inspected in accordance with applicable drawings and/or specifications;
2. All work was accomplished in accordance with the Dart Aerospace Purchase Order;
3. Results of all inspections, chemical or physical tests, as well as other evidence, which shows the acceptability of raw materials, parts and/or assembly components are on file and available for inspection at any time.

Authority:

3M 8522CP

Expiry date: Sept 13, 2018

APPROVAL:

Valerie Young

DATE:

Signature:

[Handwritten Signature]

Sept 13, 17.

Title:

office administrator

IJ35-10
IJ35-20**Quick Links**

[3M Graphics Warranties](#)
[Technical Information Selector](#)
[Safety Data Sheets \(SDS\)](#)
[Flammability \(ASTM E84 Reports\)](#)
[Videos](#)

Product Description

- For Solvent, Eco-Solvent UV and Latex Inkjet Printing and Screen Printing
- 3.2-mil vinyl film

Product Features

- Available in gloss and matte finishes
- Pressure-sensitive adhesive
- Permanent
- Expected Performance Life of 5 years (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface)

Recommended Types of Graphics and End Uses

- Short to long-term, indoor and outdoor promotional graphics
- Signs, trade show and point-of-purchase displays
- Exhibits and architectural applications

Graphic Protection

Graphic protection can improve the appearance, performance and durability of your graphic. Always use only the graphic protection options recommended in this Bulletin for this film.

- [3M™ Scotchcal™ Gloss Overlamine 8508](#)
- [3M™ Scotchcal™ Luster Overlamine 8509](#)
- [3M™ Scotchcal™ Matte Overlamine 8510](#)

Characteristics

These are typical values for unprocessed product. Processing may change the values.

Physical Characteristics

Characteristic	Value
Material	Vinyl
Film Color	White, opaque
Thickness	Without adhesive: 3.25 mil (0.081 mm) With adhesive: 4.0 mil (0.102 mm)
Adhesive	Pressure sensitive
Adhesive Color	Gray
Liner	Polycoated paper
Flammability	ASTM E84 reports: IJ35-10 and IJ35-20 , or go to the On-line Product Catalog at 3Mgraphics.com

Application Characteristics

Characteristic	Value
Finished Graphic Application Recommendation	Surface type: Smooth, flat and simple curved surfaces Substrate type: Metal, rigid plastic and painted surfaces Application temperature: 40° – 100°F (4° – 38°C) air and substrate Application method: Dry
Temperature Range After Application	-59 °F to +192 °F (-50 °C to +90 °C) (not for extended periods of time at the extremes)
Graphic Removal	Permanent

Warranty Information

Warranty Coverage Overview

The warranty coverage for eligible graphics is based on the user both reading and following all applicable and current 3M Graphics Product and Instruction Bulletins. The warranty period for eligible graphics is as stated in the 3M Graphics Warranties Matrices at the time that the film was purchased. Information found at 3MGraphics.com/warranties includes:

- [3M Graphics Warranties Bulletin](#)
 - This bulletin contains information on limitations and exceptions, and warranty period reductions for 3M Graphics Warranties. The warranty period may be reduced and stipulations may apply for certain constructions, applications, and graphic exposures as covered in this Bulletin.
- [3M Graphics Warranties Selector](#)
 - Use this selector to search for your vertical warranty period by product type, ink type, film name, and/or ink/prINTER platform.
- [U.S. Desert Southwest Region Map](#)
 - Use this map of hot, arid desert areas to determine if you are subject to reduced warranted durabilities.

The warranties set forth in this Bulletin are made in lieu of all other express or implied warranties, including any implied warranty of merchantability, fitness for a particular purpose, or arising out of a course of dealing, custom, or usage of trade.

3M Basic Product Warranty

3M Graphics Products are warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in its applicable 3M Graphics Product Bulletin and as further set forth in the [3M Graphics Warranties Bulletin](#).

Limited Remedy

The limited remedy applicable to each warranty is addressed in the 3M Graphics Warranties Bulletin found at 3MGraphics.com/warranties.

Limitation of Liability

Except where prohibited by law, 3M SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO PURCHASER OR USER FOR ANY DIRECT (EXCEPT FOR THE LIMITED REMEDY PROVIDED IN THE 3M GRAPHICS WARRANTIES BULLETIN), INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LABOR, NON-3M MATERIAL CHARGES, LOSS OF PROFITS, REVENUE, BUSINESS, OPPORTUNITY, OR GOODWILL) RESULTING FROM OR IN ANY WAY RELATED TO 3M'S GRAPHICS PRODUCTS, SERVICES, or THIS BULLETIN. This limitation of liability applies regardless of the legal or equitable theory under which such losses or damages are sought.

Additional Limitations

See the 3M Graphics Warranties Bulletin at 3MGraphics.com/warranties, for terms, additional limitations of your warranty, if any, information on reduced warranties for different exposures, and limitations of liability.

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by:

- the combinations of graphics materials used.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.

Graphics Manufacturing

CAUTION

Before using any equipment, always read the manufacturer's instructions for safe operation.

Inkjet Printing

Always read and follow the ink manufacturer's written instructions on usage.

- **Sheeted film:** When used on a flat-bed inkjet printer, sheeted film may produce printing defects.
- **Ink limiting:** The recommended maximum ink limit is 250%.
- **If sheeted or stacked graphics will be stored:** If you plan to store sheeted and stacked finished graphics for an extended period of times, leave an unprinted margin (about 1/4 inch) to allow for possible shrinkage before trimming the graphic.

Do not exceed the recommended total ink coverage for the ink series used on this film. Having too high a total physical ink amount on the film results in media characteristic changes, incomplete drying, overlamine lifting, and/or poor graphic performance.

Completely Dry Graphics

IMPORTANT NOTE

Incomplete drying or curing can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under any 3M Graphic Warranty.

See the ink's 3M Product and Instruction Bulletin for more details.

Screen Printing

Formulations and processing conditions can affect ink durability. Refer to the Product and Instruction Bulletins for your ink for limitations and proper usage.

Cutting

See [3M Instruction Bulletin 4.1](#) for Sheeting, Scoring and Film Cutting details.

Graphic Protection

Graphic protection may improve the appearance, performance and durability of the graphic. Click on the graphic protection options listed in Product Bulletin or see the [3M Graphics Market Product Catalog](#), for more information.

IMPORTANT NOTE

During installation, scratches may occur on films without graphic protection.

Application and Installation

In addition to other 3M Bulletins specified in this document, the following Bulletins provide details that you may need to successfully apply a graphic.

- [3M Instruction Bulletin 4.22](#). Hot and Cold Roll Lamination for 3M Overlaminates.
- [3M Instruction Bulletin 5.1](#) Select and Prepare Substrates for Graphic Application
- [3M Instruction Bulletin 5.19](#). Lamination, Application & Maintenance of Floor Graphics. Complete the Surface Preparation procedure found in this Instruction Bulletin prior to applying a graphic to a surface.
- [3M Instruction Bulletin 5.5](#) Application, General Procedures for Interior and Exterior Dry Application
- [3M Instruction Bulletin 6.5](#) Storage, Handling, Maintenance, and Removal of Films and Sheetings

Pressure-sensitive Adhesive

This film has a pressure-sensitive adhesive. It bonds to the surface even with light pressure and cannot be repositioned.

Maintenance and Cleaning

Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline). See [3M Instruction Bulletin 6.5](#) for details.

Shelf Life, Storage and Shipping

Shelf Life

The shelf life is **never more than 2 years** from the date of manufacture on the original box.

If you process the film, the shelf life is changed to **1 year** from the processing date, but not later than the 2 year maximum from the manufacturing date.

Storage Conditions

- 90 °F (32 °C) maximum
- Out of sunlight
- Clean, dry area
- Original container
- Bring the film to print room temperature before using

Shipping Finished Graphics

Flat, or rolled printed side out on 5 inch (13 cm) or larger core. This helps prevent the liner, if used, from popping off.

Health and Safety

CAUTION

When handling any chemical products, read the manufacturer's container labels and the Safety Data Sheets (SDS) for important health, safety and environmental information. To obtain SDS sheets for 3M products go to 3M.com/SDS, or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturer's instructions for safe operation.

Bulletin Change Summary

For the most current 3M Technical Information available to successfully use this product, please view this Bulletin electronically and click on the blue underlined links to view the relevant documents.

Release J, NOV-2016:

- Updated Thickness. See "Physical Characteristics" on page 1.

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